

ARMSTRONG (S.T.)

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# NECESSITY OF QUARANTINE,

BY

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*Read, by request, before the Tennessee State Medical Society, Nashville,  
April, 1887.*

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HASSLOCK & AMBROSE, PRINTERS, NASHVILLE.







## THE NECESSITY OF QUARANTINE.<sup>1</sup>

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PREFATORY to the consideration of this subject, it will, perhaps, be well to review the signification of the word quarantine. It is almost superfluous to say that, like many other words, to-day it does not convey the old time meaning; the forty days' detention, hieratical from the custom of Lenten purification, pseudo-scientific from the doctrine of critical days, is no longer its definition. Our accepted lexicographers define it as "an interdiction of communication to which a ship is subjected for a definite period for fear of her bringing infectious disease." Consequently, if this restraint occupy even as moderate a duration of time as the boarding of a vessel by a health officer, it will be an application of the principle of quarantine.

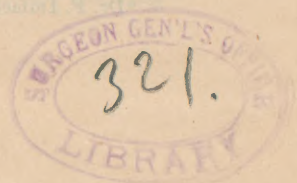
Ethically, it is a fundamental fact that the State has the right to protect the lives and health of its people, and inferentially both State and National Legislatures regard quarantine as a means of protecting the health of the people from infectious disease; as our maritime States have enacted such laws, and as early as 1799 Congress passed a law empowering United States officers to assist in the enforcement of the quarantine and health laws of a State, a provision which is an essential feature in the present national quarantine law of 1878.

It would be presumptuous in me to attempt before this audience a definition or a catalogue of infectious diseases. Of these, the plague, cholera, yellow fever, and small-pox, whose ravages in epidemics have cost thousands of lives, are the ones against which quarantine has been enforced.

Whether the idea of quarantine is any thing more than a heritage of history may best be judged by a brief reference to the past. Probably the earliest suggestion of this principle is in the thirteenth chapter of Leviticus, wherein it is directed that the leper "shall dwell alone; without the camp shall his habitation be;" and the garments he wore "shall he burnt in the fire." The Hindoos, Egyptians, Greeks, and Romans applied this method of isolating cases, and destroying clothing, etc.

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<sup>1</sup> Essay read before the Fifty-fourth Annual Meeting of the Tennessee State Medical Society, April, 1887, by S. T. ARMSTRONG, M.D., Ph.D.



In the Christian era the earliest instance of this prophylaxis was in 1348, in Florence, whereof Baccaccio says in reference to the plague which had traveled from the Levant: "In spite of all means that art and human foresight could suggest, such as keeping the city clear from filth, the exclusion of all suspected persons, . . . the disease began to show itself."

Hecker quotes Italian authorities that Genoa, which suffered in 1347 from the plague introduced by ships from the Levant, forbade the entrance of suspected ships in 1348. He ascribes to Viscount Bernabo, of Reggio, the first regulations regarding persons and goods from infected places. An examination of these regulations prove them to be devoid of ambiguity or prolixity, as the persons were to be killed, and the goods destroyed.\* [While the punishment may seem severe, it is stated that the English law, as late as 1826, made evasion of quarantine a felony, without benefit of clergy.] He also states that Venice first had health officers (1348), erected the first lazaretto (1423), and established the first board of health (1485); a republic, as to day, leading the van in progressive works.

France and Spain soon followed Italy's example and instituted their first quarantines.

In England, Gloucester in 1348 established a cordon sanitaire against Bristol on account of the plague. The king issued quarantine proclamations prior to 1604; from that date until 1710 all regulations were occasional; and in later years various acts, some limited temporarily, were passed by Parliament. To-day yellow fever should, by law, be as stringently quarantined against as in one of our own Gulf ports.

In America, Wm. Penn issued the first law on this subject, for the province of Pennsylvania, on October 4, 1700; though it does not appear to have been enforced until 1728; and not until 1743 was an act passed providing for a quarantine establishment. Massachusetts enacted a law in 1701, and in 1736 commenced its quarantine establishment. New York passed a law in 1758, and commenced its build-ings in 1799. Louisiana first quarantined in 1821, though its subsequent enforcement was fitful; from 1796 to 1886 there were only thirty-six years in which quarantine was enforced.

It is known that the laws of Moses did not exterminate lepers, nor the regulations of the Italian cities stop the plague; nor the laws of Massachusetts, New York, Pennsylvania, or Louisiana prevent the en-

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\*Dr. F. Imlach, *British Medical Journal*, September 16, 1882, page 520.



trance of yellow fever or cholera. Is, then, the present adherence to quarantine fatuous?

To decide this question, to secure an approach to uniformity in quarantine and sanitary matters in different countries, International Congresses have been held in Paris, Constantinople, Vienna, and Rome, the first in 1851 the last in 1885. But the associated countries have invariably failed to ratify the conclusions adopted.

In the United States a Quarantine and Sanitary Convention met in Philadelphia in 1857, and elsewhere in three succeeding years, and the meetings were attended by representatives from the more important of the Atlantic States, and even from one interior State, Tennessee, one of whose physicians, the late Dr. Guthrie, found time to undertake the then arduous duty of attending the last meetings and laboring in the interests of public health. Needless to say that much good resulted from these meetings, and this convention found a successor in 1874 in the American Public Health Association.

A review of the work of these bodies shows every stage of opinion, from absolute interdiction of intercourse during the summer months to free communication during the entire year. Though the tendency of the majority is to the *media res* of disinfection of vessels and minimum detention.

In many cases the same locality has been subject to these pestilences several times. Would quarantine have protected them? To quote from the quarantine report of the General Board of Health of Great Britain in 1849: "The real question is whether quarantine can prevent the extension of epidemic diseases, whatever may be their nature, whether contagious or not. If it can, it is valuable beyond price; but if it can not, it is a barbarous incumbrance, interrupting commerce, obstructing international intercourse, periling life, and wasting—and worse than wasting—large sums of public money."

Local factors will exist favoring the propagation of a disease, and in certain regions plague, cholera, and yellow fever are epidemic. Manifestly it would be absurd for a country to quarantine against an indigenous disease. Havana would uselessly destroy her commerce to quarantine against yellow fever.

It is generally accepted that neither small-pox, cholera, nor yellow fever are indigenous to the United States, and the plague is unknown. So, as these diseases are exotic, they must be introduced either on our Atlantic or Pacific seaboard, or on our Canadian or Mexican border; and numerous well-attested instances are recored of disease securing

an entrance through our Atlantic and Gulf ports, and across our northern and southern borders.

In the history of these epidemics in this country it will be found that quarantine has been employed from the last century, but to within recent years it was—and is yet, except in certain parts—a quarantine of detention. This history teems with instances of alleged rigorous quarantine which failed to exclude epidemic disease, and again instances, equally veracious, wherein it was successful. To cite all, or even part of these, with their mass of conflicting evidence, would attain a proximity as tedious to the compiler as it would be painful to the enforced listener.

Medical and sanitary science of to-day has in the germ theory of disease approached a *post ergo propter hoc* position, which divests a discussion of the fallibility of quarantine of the asperity formerly attendant thereon. The researches of Koch have decided the *fons et origo* of cholera; and, while not yet generally accepted by the medical world, Domingas Freire claims to have done the same for yellow fever.

The vitality of this germinal matter is evidenced in the cholera epidemic of 1873, the disease appearing in interior States on the unpacking of clothing of immigrants from cholera districts in Europe. To many of you the development of yellow fever from opening clothing, worn and packed away during an epidemic of that disease, is quite familiar.

But its persistency in vessels surpasses any known duration of viability in *fomites*. A reference may be made to the histories of successive contagion in the sanitary histories of the United States ship Gen. Greene in 1800, Enterprise in 1825, and Her Majesty's ship L'Eclair in 1845. But the following histories, less accessible, are related as particularly suggestive:

Assistant Surgeon A. N. Bell, United States Navy, reported that in 1847 the United States ship Vixen was on duty in the neighborhood of Vera Cruz, and her crew had suffered from yellow fever, which ceased during the winter. But it re-appeared in 1848. In order to rid the vessel of infection and vermin, everything susceptible of injury was taken on deck, the hatches were closed, and steam turned in for three hours; after this there was a thorough scraping, whitewashing, and painting, and no more fever. In June, 1848, the Mahones, of the same fleet, which had previously had yellow fever, was infected; she was steamed out by the Vixen's engines, and the fever ceased. Both vessels remained near Vera Cruz until August, when they returned un-



affected to Norfolk; while the Cumberland and Scorpion, of the same squadron, returned to New York at the same time, and both were infected with yellow fever. [Yellow fever appeared on the United States ship Mahaska, at New Orleans, in 1867, and on the United States ship Don, at Santa Cruz, in November, 1867, and both vessels were steamed out with no subsequent appearance of the fever. Against this method of disinfection contrast the United States ship Marion, at Montevideo, in March, 1880, where, on account of yellow fever, for sixteen days an average of fifty pans charged with chlorinated lime and sulphuric acid, and frequently renewed, were kept below decks. Yet when the hold was afterward broken out two of the men so employed were attacked by yellow fever.]

The United States ship Susquehanna arrived at Grey Town, Central America, in 1857, from the Mediterranean. A few months after her arrival yellow fever appeared on board, and the vessel immediately sailed north, leaving nearly one hundred cases at the Royal Naval Hospital, Kingston, Jamaica, *en route*. On arriving at New York about one hundred additional cases were sent to the hospital; the vessel was unloaded, fumigated, whitewashed, ventilated, and almost \$19,000 expended for ice and salt, which was placed in the hold from April to October; and in September the first man sent below decks took yellow fever and died. She remained dismantled several winters, and when she again returned to the tropics yellow fever re-appeared.

The United States ship Plymouth incurred yellow fever at Santa Cruz, November 4, 1878. On November 8th and 10th, and December 1, 1878, and January 26 and February 2, 1879, the habited parts of the ship were fumigated with sulphur, the vessel having sailed north immediately after the first case appeared. Everything was removed from the vessel, and at the Boston Navy-yard the ship was freely exposed from January 8 to February 4, 1879, and then repaired. On March 15th she sailed for the West Indies, and on the 21st (before touching at seaport) a seaman was taken ill with yellow fever, and on the 22nd a second man. The ship immediately returned to the north, and subsequent examination showed extensive decay of timbers and a foul bilge.

Several instances of the persistency of germ life may be gathered from the history of vessels in the mercantile marine. In the New York *Herald* of November 24, 1885, it was reported that Christian Oulby, a fireman on the steamship Alvo, died of yellow fever in New York after two days' illness. In the same paper of September 7,

1886, Frank Golden, fireman, on the same vessel, died of yellow fever in New York. In each case these men were well when inspected at the New York quarantine, and had been ten days on the passage from Port Limon. The agent of the vessel is reported as having stated in reference to the last case that it was *the first on record* from their steamer; yet it has been alleged that every year she loses a fireman from this disease.

With the introduction of small-pox, like cholera, by emigrants, the health records of this country are replete with statistics. In revising this paper the morning telegraphic dispatches state that a Chicago health inspector found a case of small-pox on April 7 in an Italian laborer who had arrived in Chicago on April 1st from New York. He was one of some six hundred immigrants on the steamer *Alsatia*, among whom several cases of small-pox broke out on the passage. When it arrived in New York it was quarantined for a day and night, when most of the passengers were allowed to land.

Presumably it would be granted that a vessel, or its contents, may be the carriers of infection, and that no other means could exist, except the land boundaries before mentioned, for the introduction of contagious disease in the United States. That these land routes can be controlled has been demonstrated by the limitation of an epidemic of yellow fever in 1882 on the Texas frontier by the *cordon sanitaire* established, in connection with the State health authorities, by the United States Marine Hospital Service; and on the Canadian frontier by the limitation of small-pox in 1885, the sanitary inspection of the same Service preventing its introduction into the United States.

Yellow fever, and probably cholera,\* can be exterminated in a ship, as has been shown. With immediate vaccination on the appearance of small-pox on board, and isolation of the case, disinfection of discharges, clothing, and quarters, this disease will be stamped out. The same measure (except vaccination) may be applied in the case of cholera or yellow fever.

But, you say, suppose the vessel has not the means of employing steam disinfection, or applying these other well-recognized sanitary procedures?

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\* Surgeon Abel F. Price, United States Navy, reported that cholera appeared on the United States ship *Ossipee*, while in Nagasaki, Japan, in August, 1885. The vessel left that city, put the crew ashore, disinfected the berth deck by steam for two hours, and then fumigated with sulphur. The crew returned, after being individually disinfected, and no more fatal cases occurred.



In such a case it certainly would not be counselled to permit this vessel to go to a wharf, her passengers dispersing, and probably becoming individual centers of epidemic development. Thus only two courses are left, to quarantine or to turn the vessel away from the port. The latter will not be entertained, so the quarantine becomes necessary.

But not a quarantine of detention; for the case of the *Susquehana*, with five months' detention, and yet yellow fever poison latent in the hold, is not the only case of this kind. Nor is the injustice of associating compulsorily the sick and the well taken into account.

Nor can the quarantine be one of fumigation alone, for this has often failed. But thorough fumigation of the vessel under pressure, so that the destructive agent employed permeates every part of the ship, as is practiced at the Louisiana quarantine; disinfection of all wearing apparel; detention of sick passengers, and temporary surveillance of others recently exposed, commend themselves as measures least obstructive to commerce, most just to the passengers and the residents of their destination, and in accord with our present scientific information.

And, lastly, I would append the most salient conclusion of the International Sanitary Conference of Rome: "It is the interest of each nation to assure the salubrity of its seaports. It will often thus avoid the invasion of its soil by exotic maladies, and above all will rarely transport upon its vessels endemic diseases."

[NOTE.—A list of all the cities, with date of appearance of cholera and yellow fever has been made, but on account of its bulkiness has been omitted. Also the Bibliography, excepting Reports of Quarantine and Sanitary Conventions of 1858, 1859, and 1860, Annual Reports of the United States Marine Hospital Service, United States Navy, and the Report of the Cholera Commission of 1873.]







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